ed the same method in the last century, but was obliged to renounce it. Chomel thinks that where antiphlogistics are relied upon, the duration of the disease is lengthened, and relapses are more frequent.

Whatever plan of treatment is adopted, the diet of the patient should be restricted; food should be given gradually, and not till after the symptoms have entirely disappeared. In the treatment of the cerebral symptoms, such as epilepsy, amaurosis, &c. purgatives, combined with blisters to the back of the neck, the temples, or scalp, were found the most efficacious.

T. S.

ART. XIII. *Traité Clinique des Maladies du Cœur, précédé de Recherches Nouvelles sur l'Anatomie et la Physiologie de cet Organe.* Par J. BOUILLAUD, Professeur de Clinique Médicale à la Faculté de Médecine de Paris. Paris, J. B. Bailliére, 1835.

Clinical Treatise on the Diseases of the Heart, preceded by new researches into the Anatomy and the Physiology of that Organ. By J. BOUILLAUD, Professor of Clinical Medicine at the Faculty of Medicine, of Paris. 2 vols. Paris. J. B. Baillière, 1835.

The name of Dr. Bouillaud must be familiar to most of our readers, as the author of a work on the epidemic cholera of 1832, of one on essential fevers, of another on encephalitis, and, lastly, as the editor and in part the author of a Treatise on Diseases of the Heart, published as the result of the joint inquiries of MM. Bertin and Bouillaud. The last named work was principally due to the individual labours of M. Bouillaud; a few chapters only were written by M. Bertin. Since the publication of this work on diseases of the heart, M. Bouillaud has added largely to his reputation and to his experience. He has become professor of clinical medicine at the faculty of Paris, where he was the successful competitor of Louis and Rostan, both men of more mature age and of the best established professional reputation.

The position of M. Bouillaud at the school of medicine, placed him under favourable circumstances for the prosecution of his researches. He has fully availed himself of these facilities, and has cultivated pathological science with ardent devotion, more especially in connexion with the diseases of the heart. The new facts which he has collected are so numerous that he has entirely rewritten his original work, and has so much enlarged the subjects formerly treated of as to give a character of originality to the whole treatise.

Some of the diseases of the heart, especially the inflammation of its internal membrane, have been so much more thoroughly investigated by Dr. Bouillaud than they had been by previous observers, that the knowledge of these affections may be said to date from his labours.

The earlier works of Dr. Bouillaud do not always indicate accurate habits of observation, but the productions of his mature age have been formed under happier auspices. A more correct method of observation has become general; an author scarcely ventures to confine himself to the crude ideas which were too often admitted into medical works under the stamp of a name of eminence in science. The labours of the accurate school of Louis and Andral have been generally appreciated; M. Bouillaud has felt this happy influence, and has laid aside the prejudices which for a time diminished the respect he now feels for his able competitors. The observations contained in the work on diseases of the heart, especially those which are dated within the last five years, bear the impress of truth throughout their details, and are generally as complete as an accurate observer would require. The facts are analyzed with skill, and, while numerous important deductions are made from them, the limits of strict logical inference are rarely overstepped. In a few instances, the author may have been carried away by his enthusiasm and ardent desire of simplifying an obscure subject, so far as to become blinded to exceptional and contradictory facts; but these faults are neither too numerous nor too glaring to prevent us from fully appreciating the high excellence of the work.

The general features of the work offer some other exceptionable points; it is too diffuse to be as generally read as it deserves to be. The effort of working our way through two octavo volumes, is a rather formidable task, requiring some moral courage and a strong desire for truth. The number of new medical works is annually increasing with such rapidity, that it is almost a matter of conscience to narrow the limits of each monograph to the exact space necessary for expressing all that is useful, but nothing superfluous. Dr. Bouillaud has not always thought of this necessity; his book has evidently not been subjected to that laborious pruning which rejects every redundant word, and spares the reader the trouble of analysis. If we were inclined to be still more censorious, we should object to those frequent allusions to his own observations and that overweening anxiety lest a single new or enlarged idea should perchance be attributed to any but the rightful proprietor. We are strong and constant advocates of the doctrine that in science, as in arts, the honour of each discovery ought always to be rendered to the original author, but it seems indicative of a needless and over sensitive vanity, to watch earnestly over the property of isolated and in themselves unimportant facts, when the high and undoubted merit of enlarging the limits of science and rendering clear and positive much that was obscure and doubtful, is uncontested. We ought not to insist upon this harmless exaggeration of a vanity, usually regarded as a national peculiarity, but we should welcome the work with the praise it so amply merits.

The expression "disease of the heart," was once appropriated to a succession of most painful symptoms, necessarily terminating in death. This association is not yet completely broken up in the minds of practitioners, and is still firmly rivetted in the opinion of the patients who suffer from those distressing affections. The idea that disease of the heart was necessarily mortal, rendered practice inefficient; lesions which were from their nature incurable, gave rise to painful symptoms which might have been alleviated by the physician, and functional disorders of the heart were often allowed to pass into organic affections. The error is, therefore, a capital one, and involves consequences of the highest importance; more especially, as the diseases of the heart, from their frequency and the extreme sufferings to which they give rise, are always classed amongst the most dreaded of those maladies which form the chief outlets for human life. Humanity is, then, under deep obligations to those physicians who, by their untiring industry and happy method of rendering their facts useful, have placed the diseases of the heart in a new point of view, and have shown that they are often curable, almost always to be alleviated, and, in most cases, may be prevented by an appropriate mode of life.

It would be an interesting study, to trace the progress of the knowledge of diseases of the heart from the imperfect state in which it long remained, down to the present advanced state of pathology. The cardiac affections were, until recently, so obscure, that in some cases they were completely overlooked, and in numerous others were classed under the vague denomination of disease of the heart. At the present time, a new field has been opened, the various improved means of examination, and the more accurate researches in pathological anatomy have rendered the lesions of the heart nearly as well known as those of the lungs, and have given us tolerably sure rules of treatment.

The knowledge of cardiac disease, down to the time of Laennec, was confined to a correct appreciation of the general symptoms, and to the description of the pathological changes found after death; the anatomical lesions were not often distinguished, one from the other, during life. The discovery of auscultation, by Laennec, which furnished a new and sure means of diagnosis, rendered the affections of the heart more interesting, and far more easily recognised than most diseases. Still the means of diagnosis were comparatively so few, that until the physiological action of the heart had been studied by Dr. Hope, aided by the labours of other physicians, its pathological condition could not be clearly recognised. The inquiries of Dr. Bouillaud have added largely to the means of diagnosis already possessed, and have thrown much light on the causes of diseases of the heart and their connexion with other affections of the body.

The progress of medical science relative to the diseases of the heart has thus followed its usual course. The attention of the earlier exact observers was chiefly bestowed upon the study of anatomical lesions, and afterwards on the improved methods of diagnosis, which were more and more perfected by each successive pathologist. Last of all, they attained a correct knowledge of the most frequent causes of disease of the heart, and a tolerably sure possession of the best means of cure or palliation. There is nothing in this gradual progress of science which is peculiar to diseases of the heart, the same succession of facts must be pursued to become familiar with the diseases of other organs, and just in proportion as our knowledge of the pathological anatomy of organic disease is accurate, will we be enabled to relieve or to remove the painful symptoms caused by the anatomical lesions. This power is the direct consequence of improved pathology, but its secondary influence extends to the early symptoms of disease which precede the formation of organic lesions, and to the chain of morbid phenomena which gradually increase in severity until they terminate in death. An acquaintance with the causes and the earlier stages of disease is the most important result of the physician's labours, and, when perfected, is the ultimate limit of medical skill. The work under review is one peculiarly happy in the constant tendency of its inquiries towards a knowledge of the primitive affections of the heart, which terminate in frightful organic lesions destructive of life, after years of severe suffering. It is not confined to the diseases of the heart, for the author demonstrates more clearly than was ever done previously that many of these primitive diseases are themselves accidental lesions, developed during the course of rheumatism or gout. It will, therefore, we are convinced, prove most instructive to the practitioner.

The author commences by a description of the normal anatomy of the heart. He has given especial attention to the internal membrane of this organ or *endocardium,* which is not unfrequently the seat of inflammation, terminating in the formation of plastic lymph, and in the end giving rise to disease of the valves. This membrane, in the natural state, resembles the serous coats, and, when inflamed, the morbid product is very similar to that furnished by the pericardium, but, from the constant motion of the heart, and the rapid passage of the blood over the membrane, the lymph is washed away before it has time to accumulate in large masses.

Next follows a series of observations in relation to the size and weight of the heart. These observations are divided into three classes: 1st. Those in which the heart seemed about the natural size; 2nd. Where there was an increased developement of that organ, and thirdly, where it was of less dimensions than usual. In the adult from twenty-five to sixty years, the mean weight of the heart is eight or nine ounces, (equal to nine or ten English ounces.) Between the ages of sixteen and twenty-five years, the weight may be an ounce or two less. If the individual be very large and muscular, the heart may weigh ten or twelve ounces, (French.) The heart in women is a little lighter than in men.

M. Bouillaud has found that the transverse diameter of the heart differs in the normal state very little from the vertical. The thickness of the left ventricle at the maximum was eight lines, the minimum five lines, and the average thickness six lines. The thickness of the right ventricle, measured at its base like the left, was, the maximum 3½ lines, minimum 1½ lines, average 2⅗. His observations accord with those of other writers, that the capacity of the right ventricle and right auricle is a little greater than that of the cavities on the left side of the heart. We have not entered into all the details cited by M. Bouillaud, and think a full statement the less necessary, as the measurement of the heart and arteries, with other points of pathological anatomy, have been fully and most elaborately investigated by M. Bizot, of Geneva, whose results will shortly be published at Paris.

The mensuration of the heart by percussion on the exterior of the body, is one of the most important amongst the improved methods of investigation, which modern research has furnished to medicine. Percussion is made by striking upon the fore-finger of the left hand, or any other pleximeter. By carefully proceeding from right to left, and afterwards percussing the præcordial region in a vertical direction, the extent yielding a dull sound may be estimated with entire accuracy, and any deviation from the normal limits (one and a half to two square inches) may be correctly known. From our own observation in diseases of the chest, we place the greatest reliance upon percussion as a means of estimating the dimensions of the heart; it is easily performed and mathematically accurate.

M. Bouillaud thinks the sounds of the heart, in a normal state, are produced entirely by the closing of the valves. This opinion is universally admitted, as regards the second or the sharp clacking sound formerly ascribed to the contraction of the auricles. But there is still some difference of opinion respecting the first or prolonged murmur which Dr. Bouillaud and some others ascribe to the closing of the auriculo-ventricular valves. Whatever opinion may be finally adopted by the physician respecting the immediate cause of both the sounds of the heart, it should be remembered that all the recent experimenters agree that the first, or prolonged sound, is produced during the systole, and the second, or sharp clacking sound, during the diastole of the heart. This fact is to be recollected when we examine the morbid sounds of the heart.

Passing over the author's account of the various alterations produced by disease in the impulse and sounds of the heart, we shall examine his opinions as to the cause of the bellows sound which may arise in the following circumstances.

1. "I have observed the bellows sound in several patients, in whose hearts we found, after death, large fibrinous concretions, evidently formed during life." We agree with the author in the truth of this remark. We have had occasion to verify it at the hospitals of Philadelphia, in subjects, of whom one or two had offered at the same time traces of inflammation of the lining membrane of the heart. That this sound most frequently accompanies the formation of these concretions, seems rather doubtful; at least I have seen patients under similar circumstances, in whom there was a confused, irregular sound of the heart, but no bellows murmur.

2. "I have heard the bellows sound in cases in which the orifice of the aorta was manifestly more contracted than natural, although the semilunar valves were entirely healthy." This lesion, which is usually

connected with hypertrophy and dilatation of the left ventricle, I have often witnessed, and in these cases I have verified the existence of the bellows sound during life.

3. The author has heard the bellows sound in cases in which the valves of the heart were covered with bony or cartilaginous patches, without evident contraction of their orifices.

4. The same sound was detected in cases in which the auriculo-ventricular valves adhered to the sides of the heart. The adhesion thus formed prevented the complete closing of the valves. We examined a remarkable case of the same kind at the Pennsylvania Hospital, about two years since.

5. Dilatation of the orifices of the heart, accompanied by a contracted, shrivelled state of the valves, which have lost the power of unfolding themselves, is another common cause of the bellows sound. This variety we have often met with.

6. The bellows sound, as the author remarks, is frequent in persons who have a moderate hypertrophy of the left ventricle, after excessive fatigue, excitement of the mind, or other causes capable of producing palpitations.

7. Chlorotic, nervous patients, sometimes offer a well marked bellows sound of the heart.

8. Excessive loss of blood will give rise to the same morbid sound of the heart. This is easily verified in women who have lost much blood from flooding, in patients severely wounded, &c.

From the preceding inferences of Dr. Bouillaud, to which might be added some cases of fever and other diseases not originally affecting the heart, it is evident that the bellows sound may be heard in all cases in which the blood is driven through the arterial orifices with such force as to produce a decided friction. To this friction, the author refers the bellows sound, and we agree with him; for as the bellows sound is but a mere modification of the valvular or natural sounds of the heart, not a new sound, it varies indeed in different cases, but still always possesses sufficient permanency to enable us to identify it. The rasping sound is but a modification of the bellows murmur, owing to bony or calcareous deposites upon the valves; in its causes it does not essentially differ from the bellows sound, except from the roughness of the contracted or dilated orifices of the heart.

We may remark in passing, that these morbid sounds may depend upon the frequently contracted orifice of diseased valves. Whenever a valve becomes thickened, either from a deposit of new matter between its coats, or from vegetations upon its surface, it is necessarily rigid, and cannot dilate so perfectly as to allow the blood to pass freely through it. Its rigid, unyielding surface loses the essential quality of a valve, and offers a permanent obstacle to the passage of the blood. The very same rigidity prevents it from completely closing when the stream of blood should be cut off; hence some reflux of it generally takes place. When a valve adheres to the walls of the heart or to the surface of the vessels, it offers the only example of real dilatation during the period of closure, without a corresponding contraction, when the valve should open, but as the morbid contraction modifies the natural sound of the heart in a much more important manner than its permanent dilatation, it is very easy to confound contraction of the valve with its dilatation. This error may to a great degree be obviated, by attention to the precise situation of the morbid sound, and to the *time* of the heart's pulsation at which it occurs.

The alterations in the rhythm of the heart have long been regarded as amongst the most certain signs of disease of the valves. M. Bouillaud does not restrict modifications of the natural rhythm to valvular disease alone, but he includes cases in which the internal membrane of the heart was inflamed. There seems to be no constant connexion between the varieties in the rhythm and the particular diseases of the valves.

The morbid sounds yielded by the arteries, afford some points of interest which are well pointed out by Dr. Bouillaud. These sounds are of three kinds, all nevertheless connected with the bellows murmur. The first is the simple bellows sound; the second a hollow sound with a musical intonation, and the third a prolonged whistling. These different sounds usually exist at the same time in different arteries of the body, more especially the larger arteries, as the carotids and femoral. They occur almost exclusively in one class of patients; those affected with anemia, whether the anemia depend upon disease of the heart or not. The largest number of patients presenting this phenomena, are to be found amongst chlorotic women.

One of the most curious results to which the author has attained, is the identity of the placentary sound heard during pregnancy, with the bellows murmur of the arteries. We think he has fully corroborated this assertion, which was verified at Paris by the dissection of a woman dead of an operation made for the removal of a supposed extra-uterine pregnancy. It was then found that the tumour was in reality a cancerous mass, although there was a distinct sound during life, similar to that produced by the impregnated uterus. The pressure of the uterus upon the arteries of the pelvis, would then seem to be the chief cause of the sound commonly, but incorrectly, referred to the placenta.

The remarks of Mr. Bouillaud relative to the general causes of the primary diseases of the heart, are well worthy of careful perusal. His correct habits of observation and long experience of these diseases, with the accurate researches he has made into their predisposing and exciting causes, give unusual value to this part of the subject.

The knowledge of the diseases of the heart, as of every other organ, is based upon the anatomical characters left after death, and the physiological alterations or symptoms observed during life. The anatomical characters indicate the remains or traces of the disease, rather than the disease itself. The physiological signs are in part owing to the original disease, and in part to the secondary changes of structure, induced by it. An example will render this more clear. If we examine the heart of a patient who has long laboured under disease of this organ, we will very often find the muscular tissue of it hypertrophied, and the valves thickened and indurated. During life, certain changes in the natural action of the heart indicated the different stages of the disease, both of the valves and the muscular fibre. But all these organic changes arose from an acute inflammation, dependent on rheumatism as its exciting cause. A great excellence of Dr. Bouillaud's work is, the extreme care with which he has sought and has pointed out these different changes in the diseased action, connected, perhaps, at first, with rheumatism, which was thus the original point of departure, for the whole train of organic lesions witnessed on the inspection of the body after death.

During life, the art of diagnosis consists in ascertaining the organic lesions by a careful examination of the physical signs, and an accurate investigation into the general symptoms. Without the concurrence of both these means of explanation, the diagnosis would not reach the greatest attainable certainty. The absolute necessity of both kinds of research is familiar to most physicians, but even with this aid they are obliged to feel that the most minute inquiry into all the symptoms will sometimes fail to afford them the necessary precision in diagnosis. The physical means of examining the diseases of the heart, consist in the auscultation and percussion, and afterwards the inspection of the exterior of the chest, by the sight and the touch. The signs derived from these sources will teach us very nearly the physical state of the heart. The general or physiological signs are the fever, and the consequent derangement of the different organs, caused by acute cardiac diseases; we may add, the serous effusions into the various cavities of the body, and into the cellular tissue which usually follow chronic lesions of the valves. In the same series may also be included the passive hæmorrhages and congestions of blood, from which many of the viscera suffer in the latter stages of cardiac disease.

The information derived from these various means of examination, is even more essential to the diagnosis of diseases of the heart, than those of many other organs.

The *causes* of diseases of the heart are, in some respects, common to it and the other viscera, and in others they are peculiar. Thus, a blow which bruises the walls of the thorax opposite to the heart, or the sudden impression of cold upon the skin, may give rise to carditis or to pericarditis without the intervention of any previous disease. Other causes are more limited in their action to the heart itself; they are such as either stimulate this viscus directly, or produce diseases of other parts, which re-act upon the central organ of the circulation; for, from the very nature of its functions, it is necessarily exposed to influences of this kind.

Amongst the causes which excite the heart most directly, are the emotions of the mind. Corvisart regarded them as the most powerful of all causes. But although their influence is undoubtedly great, it seems to Mr. Bouillaud, and our own observation confirms his opinion, that they give rise to nervous or strictly functional diseases of the heart, far more frequently than to organic lesions. It is true that these latter are sometimes the terminating point of many long continued functional derangements. So that to a certain extent, the influence of the passions, in producing chronic disease of the heart, may be readily admitted.

There is one disease which very frequently co-exists with acute inflammations of the internal or external membrane of the heart, and at other times precedes it; this is rheumatism. The precise relation of it to both endocarditis and pericarditis will be afterwards pointed out, but at present it is proper to note the frequency and the importance of this connexion. Whatever may be the lesion of the heart, which is produced by these different causes, it rarely remains as an uncomplicated affection. The peculiar characteristic of all the diseases of this organ is, that one tissue after another is attacked, and finally the whole train of symptoms are developed, which form the closing scene of cardiac diseases. In a majority of cases, several different lesions of the heart occur simultaneously, and finally form but one disease. And if we cannot completely remove the affection, it will again reappear under some new, and generally more complicated form.

The influence of hereditary predisposition is not less strong in facilitating the production of diseases of the heart, than of those of the lungs or brain. Families are frequently subject to these diseases for several successive generations, and are destroyed by them as soon as the middle period of life is attained.

In the classification of the diseases of the heart, the author follows the grand divisions universally adopted, of organic and functional disorders. But in his subdivision of the organic lesions, he differs considerably from many pathologists, from the extent of influence ascribed by him to inflammation, which he considers the origin of most diseases of the valves, and secondarily of the muscular fibre. This opinion will be afterwards considered, when speaking of the chapter relative to endocarditis.

The duration of cardiac affections is so various, that no precise limits can be assigned to them. Dr. Louis found that six years was the average duration of cases of hypertrophy and diseased valves. But these cases relate to patients in hospitals, whose complaints had in most cases been aggravated by the want of medical attention, and an improper course of life. In private practice, where all the aid necessary to check the progress of disease can be procured, the duration of those of the heart may be protracted to an almost indefinite length. Indeed they need not necessarily abridge the average duration of life, if a persevering care be exercised by both patient and physician. Their progress is not necessarily continuous; the symptoms of the disease may be much mitigated, but unless they depend upon strictly nervous or functional disorder, though they may be arrested for a time, they return again with new force when the temporary abatement in the symptoms ceases. The practitioner should never lose sight of this fact, and should be on his guard against temporary intermissions, however useful they may be in the treatment of cardiac diseases from giving a short repose to the patient, and enabling the physician to interpose his aid with more effect.

As the diseases of the heart are generally complex, they may offer two elements; one the organic lesion, which cannot always be eradicated, the other the mere nervous or functional disorder, which may be checked completely and sometimes finally removed, without interfering with the progress of the organic disease. By attention to this distinction we have done much good; we have often modified the treatment in such a way as to remove the functional disorder which aggravated the organic disease of the heart, and was the most fruitful source of the painful symptoms experienced by the patient. In some instances, this functional disorder depended upon irritation of the spinal nerves, and was quickly relieved by applications to the dorsal and cervical vertebræ; in other cases, an over excited hysterical temperament was the exciting cause; in a third class, derangement of the digestive function, excess of venereal indulgence, or other obvious abuses of living were easily recognised as the origin of the accidental disturbance.

In his treatment of diseases of the heart, especially the acute inflammations of its internal and external membrane, or of its tissue, the author follows a vigorous and long continued depletory practice. We agree with him that this is the most safe and prudent course. But in chronic affections, we are convinced that the depletory and rigid antiphlogistic practice has been much abused. In very old hypertrophy, especially when combined with dilatation, as is most frequently the case, excessive blood letting, rigid diet, and the long continued use of digitalis, debilitate the patient, impede the action of the heart, and hasten that change in the elements of the blood which accompanies the dropsy of the last stages of disease of the heart. We have been witnesses of these different errors; we have seen patients enter public institutions, who had not been treated in a sufficiently active manner at the origin of the disease; but we have still more frequently witnessed cases of the greatest exhaustion and extreme anasarca, in which debilitating remedies were used, when neither the physical state of the heart, nor the enfeebled constitution of the individual called for such a course. In France, physicians are in the habit of taking blood much less copiously than in America; hence there is more room for Dr. Bouillaud's remarks, as to the feebleness of ordinary practice, than there is with us, where the most frequent error with young physicians is to bleed largely when the blood is beginning to lose its red globules, and to protract the antiphlogistic treatment too long. Such erroneous practice is especially to be avoided when the nervous diseases of the heart complicate its organic affections.

Our own views as to the best treatment of diseases of the heart in general, are as nearly settled as the present state of the science upon that subject will permit. We bleed freely, and even frequently at the beginning of a pericarditis or endocarditis, following up the bleeding by cups. Blisters are useful, but on less unquestionable grounds. When the active stage of inflammation is passed, or even during its progress, conjointly with the other remedies, tartarized antimony, colchicum or digitalis may be given with great advantage. But when the disease of the heart is of a more chronic character, blood-letting should not be so frequently repeated, and should be barely sufficient in quantity to diminish the inordinate action of the heart, without materially encroaching upon the strength of the patient. We should enjoin perfect quietude of mind and abstinence from fatiguing exertion, such as going up hill, or ascending a staircase; but moderate exercise in a carriage is of undoubted advantage. The diet should consist of mild, but still sufficiently nutritious articles. The medical treatment which from time to time may be called for, in addition to these hygienic means, must be left to the skill and discretion of the practitioner.

A complicated case of slight hypertrophy of the heart, with much functional disorder, is often met with in young persons of a nervous temperament. This variety is most frequent a few years after puberty, and is usually removed by the physical and moral effects of marriage. We have met some remarkable examples of the entire removal of these symptoms soon after marriage, although the patients had been annoyed by them for some years.

The subject of pericarditis is one to which Dr. Bouillaud has given much attention. He has illustrated the nature of the disease by a long series of observations. Until very recently, indeed until the publication of an excellent memoir by Dr. Louis, about ten years since, the diagnosis of pericarditis was enveloped in the greatest obscurity. It was thought to be a disease almost necessarily mortal, because the descriptions left of it by some of the older writers had been drawn from cases of extreme severity, which rapidly terminated in death. An example of this variety was presented by the celebrated Mirabeau, who expired after an illness of a few days in the most horrible torments. These cases are, however, exceptions: in a majority of patients, pericarditis is not attended with so frightful a train of symptoms. Frequently the disease is completely latent, and escapes the most minute examination. The first approach towards definite views of the diagnosis of pericarditis was derived from the memoir of Dr. Louis; he proved by examining records of cases, and confirming these records by his own observations, that one subject of every twenty-three dead of various diseases, presented adhesions between the two surfaces of the pericardium; in other words, offered direct proof that they had been affected with pericarditis, but had recovered from the disease. He then examined with care some patients who had presented the ordinary signs of pericarditis, and found that the region of the heart offered a decided prominence, and yielded a dull sound on percussion in the same place. The respiration was feeble, and the impulsion of the heart diminished. These physical signs were peculiar to those cases in which there was a considerable effusion of serum and lymph; but it is obvious that neither distension of the thorax nor dull sound on percussion, could exist where the pericarditis was *dry*, that is, when there had been a secretion of lymph, but no liquid. Accordingly, other signs were sought, and it was found that in some of these cases there was heard, on auscultation, a creaking sound like that produced by bending a piece of dry leather or parchment, and that at the same time there was usually a slight modification of the natural sounds of the heart, and perhaps a little dulness on percussion. So that really very few cases of pericarditis occurred, in which some physical signs of the disease could not be found, and in a great proportion of cases there were besides some of the symptoms once looked upon as the only ones which were characteristic of the affection. The disease is therefore susceptible of diagnosis in the large majority of patients, although there are some in whom it is completely latent, and in whom no evident physical signs, nor even any rational symptoms can be detected. These are usually very slight and simple cases of the disease, which are not severe enough to give rise to any febrile movement, nor to the large liquid effusion which constitutes the most important physical sign of inflammation of the pericardium.

Another class of cases which offer much difficulty, are those in which pericarditis is complicated with pleurisy of the left side. In these cases the diagnosis is difficult, from the seat of the pain, and the gradual blending of the dulness of sound caused by the effusion into the pleura, with that of the pericardium, which is so closely united to it. It is not always possible to draw the line of distinction in these cases. If error should be committed, it is not often of much consequence, as the treatment differs but slightly between severe simple pleurisy, and the same disease complicated with pericarditis. Other complications of the disease do not necessarily increase the difficulty of the diagnosis, as the physical signs of pericarditis are strictly local, and so distinct from all other lesions, that there is rarely even a possibility of confounding it with other affections of the chest.

A very common complication, first clearly pointed out by Dr. Bouillaud, is that of endocarditis or inflammation of the internal membrane of the heart, which occurs in a very considerable proportion of cases, and seems to be the chief cause of the bellows sound so often met with in pericarditis. This complication is especially frequent in those instances of pericarditis which arise from acute rheumatism, which is the exciting cause of about one-half of the whole number of cases. Indeed most severe cases of the disease are attended with this inflammation of the internal membrane. The same rule extends to the inflammation of the pericardium, arising from external causes, the immediate influence of which is confined to this serous membrane, as was well shown in a number of experiments upon rabbits prepared by M. Desclaux, a pupil of Dr. Bouillaud. We cannot speak from our own recollection in this matter, as we do not know that we had always examined cases of pericarditis with so much care as to be sure that the internal membrane of the heart was perfectly free from disease.

The causes of pericarditis have become better known in proportion as the diagnosis of the disease has been rendered more precise. These causes, in addition to blows upon the chest, and exposure to cold and wet, which sometimes affects the pericardium as directly as at other times it gives rise to inflammation of the pleura, are often to be sought for in the rheumatic diathesis. We use this term purposely, because some obscurity still rests upon this subject. It is perfectly well established that an attack of acute rheumatism will give rise to the disease in two different ways. In one case there is a real metastasis, the inflammation ceasing in the joint before it attacks the pericardium; just as one joint recovers its suppleness and becomes free from pain, when another is attacked by the rheumatic inflammation. The second variety is perhaps still more common, that is, when the pericardium is inflamed simultaneously with the joints, and the pain in them is not in the least relieved by the disease of a more important organ. In either case a knowledge of the frequency of the complication renders it an ordinary practice at the Philadelphia hospital, to explore the region of the heart with care in every patient affected with acute rheumatism.

The author alludes to chronic pericarditis in a cursory manner. We have seen cases of this variety, most of them succeeded to acute pericarditis, but in one instance the disease, which was recognised during life, began as a chronic affection from the first. This patient died, and on examination after death, it was found that the pericardium was studded with small tubercular granulations, showing that the disease was very analogous to chronic peritonitis, which is always complicated with tubercles except when it succeeds to an acute inflammation.

Dr. Louis remarked that a large majority of cases of pericarditis recover; the same happy result is confirmed by the practice of Dr. Bouillaud, who has usually treated the disease with success. In their practice they both agree that the antiphlogistic treatment is the only one adapted to the nature of the complaint, but Dr. Bouillaud follows a more energetic practice than is common with the French physicians, although it is one which would meet the views of American practitioners. He bleeds both generally and locally with great boldness, and repeats the bleeding several times in the hope of cutting short the inflammatory action. The effect of the blood-letting is kept up by the use of blisters and various debilitating remedies, as tartar emetic or digitalis. Our own views on the propriety of this course accord with those which the author has expressed; if the pericarditis be severe, we cannot be too energetic in our practice, but copious and quickly repeated blood-letting is necessary. It is, however, very true that simple mild cases of pericarditis are easily cured by a more simple and a milder treatment, so that a severe course then becomes unnecessary and even inexpedient. Important as active treatment is in the management of so violent a disease as severe pericarditis, it should not be resorted to without due discrimination as to the nature of the case.

These remarks, relative to pericarditis, may surprise some of our readers who are neither aware of the extreme frequency nor of the comparatively small mortality of the disease. They are nevertheless based upon accurate calculation, and are confirmed by the experience of several different observers. Another fact, quite as startling, is that a large proportion of patients who suffer from acute articular rheumatism, are at the same time affected with pericarditis. Dr. Bouillaud computes the average proportion at one-half the whole number of cases of acute rheumatism. This computation is rather high, unless endocarditis be included; if this addition be made, from our own observation, we should then think it quite correct to say that one-half the persons who are ill with acute rheumatism, suffer from an inflammatory disease of the external or the internal membrane of the heart, or else of its muscular fibre. It has long been known that rheumatic patients frequently suffered from disease of the heart, but it was not ascertained until recently how frequent the complication was, nor what was its precise nature.

The after consequences of the adhesions of the pericardium does not seem to our author to be great. We must all have seen numerous cases of very old adhesions of the pericardium, which were not detected until after the death of the patient, from another disease. But, on the other hand, we have occasionally met with a case in which there was permanent derangement of the health, apparently from these adhesions; although as the other parts of the heart were probably not entirely free from disease, the symptoms may have arisen from this source.

There is an inflammation of the heart which has attracted the especial attention of our author; it is endocarditis, or inflammation of the internal membrane of the heart. Some years since, before the publication of the joint work of Bertin and Bouillaud, the internal membrane of the heart was observed to offer, in many subjects, an unusually red tinge of various degrees of brightness. By some, the redness was exclusively referred to the imbibition of the blood which remained in the heart after death, and there is no doubt that in the large majority of cases in which the heart and arteries presented this redness, such was the fact. This has been proved, by filling a portion of an artery previously pale, with blood, and allowing it to remain until decomposition had begun, when the internal coat has been found to have become of a dark red colour. In other cases there is a very striking coincidence between the redness of the internal membrane and the state of the blood. When the blood is unusually liquid, as is the case in certain malignant fevers, it percolates easily through the tissues and stains them of a dull red colour. If in these subjects the natural progress of decomposition be hastened by heat, the redness is produced more rapidly. Thus, in direct proportion with the elevation of temperature, the rapid decomposition of bodies, and the fluidity of the blood, were cases of redness of the lining membrane of the heart and large arteries found.

After excepting these instances of redness of the internal coat, depending upon the progress of decomposition or the unusual fluidity of the blood, there will remain a large number of subjects who present a greater redness of the lining membrane of the heart than is found in perfectly healthy individuals. This alteration of colour is then sometimes pathological, and arises from inflammation of the internal coat of the vessels or heart, a disease not without analogy in its causes and some of its symptoms to pericarditis. Most frequently the redness is combined with other and less doubtful evidence of inflammation, such as thickening or deposit of lymph, but it is clear that neither thickening nor the morbid secretions of the membrane could ever reach an extreme degree without either causing the death of the patient, or being swept away by the continual motion of the heart and the rapid passage of the blood. From its anatomical structure we ought not then to expect the same obvious and well marked signs of inflammation of the endocardium as we would of the external membrane of the heart. The most important seat of inflammation of the internal coat, is the valves of the heart, where it is the most intense, and from the thickening or the deposit of lymph upon the valves, may give rise to their chronic alteration; their lesions afterwards react upon the substance of the heart and produces the usual series of symptoms met with in chronic disease of this organ. A knowledge of the symptoms of inflammation of the endocardium is therefore important, whether the disease be severe enough to destroy life at the moment, or it be so moderate that no present danger be feared, though the most serious organic disease may afterwards result from it.

The causes of endocarditis are nearly the same as those of inflammation of the heart. A majority of the cases arise from acute rheumatism, which sometimes will give rise to pericarditis, at other times to endocarditis, and in severe cases to both these affections. Exposure to cold and wet may also have its influence, but next to inflammatory rheumatism, the most important cause is certainly an altered state of the blood. This alteration of the blood occurs in phlebitis, and occasionally during hæmorrhage. We have seen the valves of the heart of a bright red colour, and covered with deposites of lymph, differing only in their softer consistence from the vegetations met with in chronic disease of the valves, in subjects dead of traumatic phlebitis and of hæmoptysis. The other causes of endocarditis are unknown; the first unquestionable case we observed, was that of a young physician attached to one of the Parisian hospitals; in him the disease began and ran its course to a fatal termination, without any assignable cause.

But though the origin of endocarditis is often obscure, the diagnosis of the disease is not a matter generally of much difficulty. If the primitive symptoms are often doubtful, there are nearly always some signs of an acute inflammation of the heart, which either attacks the external or the internal membrane, or else its muscular substance. As the signs of pericarditis are usually connected with physical changes, which render the disease of much more easy diagnosis than the inflammation of the internal membrane, we may then exclude this disease, and refer the doubtful cases to carditis or to endocarditis; and as the former affection is comparatively rare, the probabilities are much in favor of the latter disease. The author is extremely accurate in his description of the most frequent symptoms of acute inflammations of the heart. They are a feeling of uneasiness at the precordial region, palpitations, irregular or quick and jerking action of the pulse, increased impulse of the heart, and very often a bellows sound during the systole. The percussion is not usually much altered, but the dulness may be rather greater and more extensive than is natural, from the distension of the heart by large coagula, an accident frequently complicating endocarditis. The fever is at times intense, and much greater than in ordinary inflammations. Other general symptoms are less constant, but when they occur, add great certainty to the diagnosis. The most important are œdema of the face and ankles, and oppression of breathing, sometimes amounting to the most intense dyspnœa.

The treatment indicated by our author as appropriate to endocarditis, is a very active one, and consists in copious general and local blood-letting; blisters on the region of the heart, and the usual debilitating remedies, employed in conjunction with blood-letting. After the acute stage is passed, it is often necessary to direct our practice, with a view to subdue the subacute inflammatory action which may terminate in thickening or vegetation of the valves.

The connexion between endocarditis and chronic disease of the valves is well established. It is certain that a considerable number of patients who are taken with acute inflammation of the heart, are afterwards affected with a lesion of the valves. Our author refers to this cause all the lesions of the valves, scarcely excluding the ossifications which are so constantly observed in the bodies of aged people. He may have erred in these general conclusions; it is even more than probable that he has committed an error in assuming facts which are not yet demonstrated, and in regarding lesions which are the mere result of the natural change in the economy produced by the progress of age, as originating from inflammatory action. The word inflammation is used by him, and by other writers of the physiological school, as nearly synonymous with disease, and not as limited to a single form of morbid action.

In a practical view, the following statement will contain nearly the actual state of our knowledge of the causes and mode of production of the lesions of the valves of the heart.

1. Certain diseases of the valves, indicated by increased thickness of their fibrous coat, or by vegetations attached to the lining membrane of the heart covering the valves, are evidently the product of inflammatory action. This inflammation is sometimes indicated by well marked symptoms, at other times it is nearly, if not quite latent, and assumes a subacute form. When the symptoms are present, they are, as already mentioned, oppression, and a sense of uneasiness

in the region of the heart; sometimes, but rarely, acute pain, often œdema of the limbs, a quick inflammatory or feeble intermittent pulse, alteration in the impulse of the heart, which is at first increased, but afterwards diminished in force, and bellows sound during its systole. The countenance is livid and flushed if the disease be sufficiently extensive to interfere very materially with the circulation of the blood, by interrupting or impeding the play of the valves of the heart. If the impediment to the circulation increase, the blood is retained in the heart, forms a coagulum, and the patient dies of suffocation. Not a few patients who die with symptoms of dyspnœa, followed by the deposit of large coagula in the heart, really perish from inflammation of the lining membrane of the valves, which is followed by the stagnation of the blood.

2. Another class of cases of disease of the valves of the heart does not depend upon inflammation. It is the affection which occurs in old persons, from physiological changes of the fibrous tissues, these tissues being gradually converted into a bony substance. But the calcareous degeneration of the valves does not often exercise an important influence upon the health of the patient, or even upon the action of the heart, which does not so often become affected with hypertrophy, or dilatation, as in younger persons.

The signs of diseases of the valves of the heart are now so well known that it is useless to trespass upon the time of our readers in describing them; Mr. Bouillaud has given numerous observations of the various lesions of the valves with details sufficiently minute to offer the necessary guaranty of truth.

Hypertrophy of the heart is a disease already well described in the work of Bertin and Bouillaud; the former author was the first to establish the distinctive characters of the various kinds of hypertrophy. In the same work, the connexion between disease of the valves and hypertrophy was indicated. This connexion is still more closely insisted upon by Dr. Bouillaud in the present work, and the experience of those who have largely cultivated pathological anatomy is in direct confirmation of his views. A majority of cases of hypertrophy are certainly dependent upon disease of the internal or external membrane of the heart, and more especially of the valves. There are, however, a few cases in which the muscular fibre is first affected, and the valves are not diseased until their continued and excessive distention in consequence of the inordinate action of the heart gives rise to thickening. But the diseases of the muscular substance of the heart and of the valves, constantly tend to run one into the other; one is rarely to be found without the other soon following.

The author has given but a very short chapter to a very important subject—that of nervous palpitations of the heart, which are not accompanied by any appreciable lesions. This variety of nervous disease is so frequent amongst young people, that physicians are constantly consulted upon the subject. Amongst our own patients, the proportion of those affected with nervous palpitations of the heart is surprisingly large. These palpitations are almost always observed in persons of a nervous temperament, but they may arise from numerous exciting causes. Thus, a change of life, from an active one in the country to a sedentary studious employment in a large town, more especially a course of medical studies, disposes very much to nervous palpitations. They are extremely frequent amongst the medical students at Philadelphia, and it is said those at Edinburg. At Paris we have not observed them so frequently in the same class of young men. Depressing passions tend strongly to produce the same effect. The abuse of tobacco, of coffee, of spirituous drinks, of venereal pleasures, and especially onanism, are also very powerful causes. Another cause which is less frequent, but quite as effectual as those first mentioned, is the involuntary emission of semen arising from chronic gonorrhœa or other diseases, and described by Professor Lallemand. Anemia and chlorosis are also very frequent causes of nervous palpitations; especially when they occur in young women, in whom there is any derangement of the menstrual function. A variety of palpitations, mentioned by the writer, is one which he designates under the name of rheumatic, or irregular palpitations, not arising from any assignable cause, suddenly returning, and then ceasing again. And lastly, we may add, as one of the most frequent causes, the affection known under the name of spinal irritation, which is most easily cured by repeated external applications to the spine.

All these different kinds of nervous palpitations, are in general more effectually treated by a mild tonic treatment, than by blood-letting or other debilitating remedies, which prove most effectual in obviating the symptoms of organic disease of the heart.

This short analysis of the work will scarcely convey to the reader a distinct idea of the numerous facts presented by the writer. It is unfortunate that the exceeding diffuseness of the style should prove rather a serious obstacle to the general appreciation of the book; yet those who will not be startled at a little superfluous matter, and at not a few superfluous words, will be abundantly repaid for their labour. In conclusion, we cannot do better than allow the author himself to give an account of the chief additions he has made to our knowledge of the diseases of the heart.

"1. I have added greatly to the knowledge of the diseases already studied by my predecessors, and I have endeavoured to clear up, by the light of analysis, those complicated affections vaguely indicated under the name of aneurism, organic lesion or affection of the heart. I have, for example, clearly demonstrated that the series of phenomena, which, from the time of Corvisart have been referred, even by the best educated observers, to hypertrophy or aneurism of the heart, are commonly nothing else than the effect of certain lesions of the valves of that organ, and that the hypertrophy and aneurism are in reality but one of the consequences of those lesions.

"2. If I am not mistaken, I have thrown new light upon the acute inflammation of the external membrane of the heart. I will even venture to assert, that in respect to its causes, signs, progress and various terminations, acute pericarditis will henceforward be a disease nearly as well known as pleurisy. With respect to the causes of pericarditis, I shall mention a fact equally curious and important, which is, that this disease exists in about one-half of the patients who are affected with violent acute articular rheumatism. Pericarditis is thus, as it were, one of the elements of the disease termed acute articular rheumatism, and if we consider this disease in a more enlarged point of view, as was formerly done, we would extend the term to inflammation of all the sero-fibrous tissues in general. Since the pericardium is a sero-fibrous tissue, like those commonly affected by acute rheumatism, it is not surprising that its inflammation should so often coincide with that of the joints. In other words, that rheumatism of the pericardium should occur under the same circumstances as those which give rise to rheumatism of the articular synovial membranes and of the fibrous tissues which are lined by them.

"As to the treatment of pericarditis, my labours will, I hope, in some degree, prove that blood-letting, when practised in a more energetic manner than is usual,* gives a successful result which is truly extraordinary. Such is even the efficacy of blood-letting, when sufficiently copious and repeated at short intervals, that recovery has become the general rule, and death only the exception; the reverse of what Corvisart stated as his experience. The eleven observations detailed in the work, and treated according to the precepts which I have laid down for the treatment of pericarditis, will scarcely leave a doubt as to the exactness of what I have stated; a fortunate medical discovery, which is every day confirmed by new facts!

"3. There is another acute disease of the heart, of which I may be said to have given the first description. Before my labours, it was so completely unknown as not even to have received a name. I allude to the acute inflammation of the sero-fibrous tissue lining the interior of the heart. The complete examination of this affection is certainly one of the most original parts of the work. I wished to call the attention of readers in a particular manner to the study of this disease. I have shown that this inflammation plays a most important part in the disease of the heart, not because it is far more common in the acute stage than was generally believed, but because it is often prolonged and passes into the chronic stage, when it gives rise to grave lesions of the valves of the heart, and of the muscular tissue of the heart beneath its lining membrane. It is thus more or less directly connected with the study of the various diseases commonly known under the term organic lesions of the heart. To this lining membrane I have given the name of endo-cardium, and to its inflammations that of endo-carditis.

"Amongst the most important causes of this inflammation, as well as of pericarditis, is the rheumatic disease, or, in other words, the cause from the influence of which acute rheumatism originates. This cause acts abruptly, and arises from sudden changes of temperature, assisted by a peculiar predisposition. In the cases in which endo-carditis complicates an acute articular rheumatism, it is more easily overlooked than pericarditis, and sometimes gives rise to important lesions of the valves and to those *gouty* asthmas, whose origin and nature have been hitherto so obscure. This book will not be completely useless if it furnishes the means of preventing such an unfortunate termination of a considerable number of cases."

W. W. G.

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* The author should have said in France. The method of large and repeated blood-letting has long been the most common practice in acute inflammations, both amongst the physicians of England and of this country.